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EXAMINER

TRAN, ELLEN C

ART UNIT PAPER NUMBER

2134

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/539,421

Applicant(s)

MITSUI, YASUHIRO

Examiner

Ellen C. Tran

Art Unit

2134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-120 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-120 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communication: filed on 19 December 2005, with acknowledgement of original filing date of 30 March 2000 with a foreign priority date of 30 March 1999.
2. Claims 34-120 are currently pending in this application. Claims 34, 35, 43, 44, 52, 53, 61, 62, and 118 are independent claims. Claims 1-33 have been canceled. Claims 118-120 are new. Claims 34, 35, 43, 44, 49, 50, 52, 53, 58, 59, 61, 62, 64, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, and 93-109 were amended, in amendment of 25 November 2005, which was filed after Final Rejection of 25 August 2005.
3. 112 Claim Rejections made in Final Rejection of 25 August has been removed due to amendment.

Objections

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following is a suggestion: "An image processing system utilizing digital watermarks in predetermined regions".

Response to Arguments

5. Applicant's arguments with respect to claims 34-120 have been considered but are moot due to new grounds of rejection.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

7. **Claims 34-37, 42-46, 49, 50, 52-55, 58, 59, 61, 62, and 66-117** are rejected under 35 U.S.C. 102(e) as being anticipated by Hecht U.S. Patent No. 5,901,224 (hereinafter '224).

As to independent claim 34, “An image processing system comprising: an image providing apparatus which defines a location information indicating a plurality of regions in an image data” is taught in '224 col. 3, line 65 through col. 4, line 12 (note the plurality of regions is interpreted to be equivalent to the glyphs);

“for embedding a digital watermark in a predetermined region identified by a document information among the plurality of regions and providing said image data in which said digital watermark is embedded based on said location information” is shown in '224 col. 8, line 48 through col. 9, line 6;

“and an image utilizing apparatus which extracts said digital watermark from said image data provided by said image providing apparatus based on said location information” is disclosed in '224 col. 5, lines 33-36 (note as taught in '224 the system glyph

codes and machine readable data are interpreted to be equivalent to digital watermarks see col. 8, lines 48-65);

“and verifies whether a said image data in said desired region, in which said digital watermark is embedded, has been tampered” is taught in ‘224 col. 8, lines 60-65.

As to independent claim 35, **“An image processing system comprising: an image providing apparatus which recognizes a format for indicating a plurality of regions in an image data and provides said image data”** is taught in ‘224 col. 3, line 65 through col. 4, line 12 (note in addition to defining ‘224 recognizes embedded machine readable data by scanning and then examining the source document col. 4, lines 2-6);

“in which a digital watermark is embedded in a predetermined region identified by a document information among the plurality of regions based on said format” is shown in ‘224 col. 8, line 48 through col. 9, line 6;

“and an image utilizing apparatus which recognizes said format of said image data extracts said digital watermark from said regions based on said format” is disclosed in ‘224 col. 5, lines 33-36;

“and verifies whether a said image data in said desired region in said image data in which said digital watermark is embedded, has been tampered” is taught in ‘224 col. 8, lines 60-65.

As to dependent claim 36, **“wherein said image providing apparatus provides said image data in which a different kind of said digital watermark is embedded in a different region in said image data”** is shown in ‘224 col. 8, line 55 through col. 9, line 37.

As to dependent claim 37, “wherein said image providing apparatus provides said image data in which a different kind of said digital watermark is embedded according to an image quality in each region where said digital watermark is embedded” is disclosed in ‘224 col. 6, lines 4-14.

As to dependent claim 42, “wherein: said image providing apparatus” is taught in ‘224 col. 5, lines 21-32;

“transfers said location information to said image utilizing apparatus” and “said image utilizing apparatus extracts said digital watermark from said image data based on said location information transferred from said image providing apparatus” is shown in ‘224 col. 5, lines 33-36;

“said image providing apparatus embeds said digital watermark in said image data based on said location information to be transferred”; is disclosed in ‘224 col. 6, lines 26-42.

As to independent claims 43 and 44, these claims are directed toward the apparatus of methods of 34 and 35; therefore they are rejected along similar rationale.

As to dependent claims 45 and 46, these claims contain substantially similar subject matter as claims 36 and 37; therefore they are rejected along similar rationale.

As to dependent claims 49 and 50, these claims contain substantially similar subject matter as claims 34 and 35; therefore they are rejected along similar rationale.

As to independent claims 52 and 53, these claims are directed toward a recording medium storing programs for the methods of 34 and 35; therefore they are rejected along similar rationale.

As to dependent claims 54 and 55, these claims contain substantially similar subject matter as claims 36 and 37; therefore they are rejected along similar rationale.

As to dependent claims 58 and 59, these claims are directed toward a recording medium storing programs for the methods of 34 and 35; therefore they are rejected along similar rationale.

As to independent claims 61 and 62, these claims are substantially similar to the methods of 34 and 35; therefore they are rejected along similar rationale.

As to dependent claim 66, “wherein a density of said digital watermark is adjusted to a quality of said image data” is taught in ‘224 col. 6, lines 4-48 (note the density adjustment claimed is interpreted to be equivalent to the instructions used with the controller to make the watermark visually identical to the source document when viewed by the human eye).

As to dependent claim 67, “wherein a data amount of said digital watermark for a character is smaller than one for another type of information in said image data” is shown in ‘224 col. 8, lines 55-65.

As to dependent claims 68-93, these claims contain substantially similar subject matter as claims 66 and 67; therefore they are rejected along similar rationale.

As to dependent claim 94, “wherein said regions include at least one of character information or image information” is taught in ‘127 col. 6, lines 4-48.

As to dependent claim 95, “wherein a density of said digital watermark embedded in a region comprising character information is smaller than a density of said digital watermark embedded in a region comprising image information” is shown in ‘224 col. 8, lines 55-65.

As to dependent claims 96-109, these claims contain substantially similar subject matter as claims 94 and 95; therefore they are rejected along similar rationale.

As to dependent claim 110, “wherein said image processing apparatus further comprises means for storing said document information” is disclosed in ‘224 col. 7, lines 30-37.

As to dependent claims 111-117, these claims contain substantially similar subject matter as claim 110; therefore they are rejected along similar rationale.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 118-120, are rejected under 35 U.S.C. 103(a) as being unpatentable over ‘224 in further view of official notice.**

As to independent claim 118, “An image processing system comprising an image providing apparatus comprising: a document identifying unit configured to provide original image data in a plurality of regions, identify at least one predetermined region of the plurality of regions by a document information” is taught in ‘224 col. 3, line 65 through col. 4, line 12;

“and a digital watermark embedding unit configured to for processed image data by embedding the digital watermark in the at least one predetermined region of the plurality of regions according to the document format information” is shown in ‘224 col. 8 line 48 through col. 9, line 6;

“and provide the processed image data; and an image utilizing apparatus comprising : a document identifying unit configured to identify the processed image data, and provide the document information identifying the at least one predetermined region of the plurality of region where the digital watermark is embedded; is disclosed in ‘224 col. 5, lines 33-36;

“and a digital watermark extracting unit configured to extract the digital watermark embedded in the at least one predetermined region of the plurality of regions according to the document format information, and verify whether any of said processed image data in said predetermined region, in which said digital watermark is embedded, has been tampered” is taught in ‘224 col. 8, lines 60-65;
the following is not explicitly taught in ‘224:

“and provide the document information; a document format database configured to manage information by receiving the document information and providing a document format information for embedding a digital watermark in the at least one predetermined region of the plurality of regions identified by the document information” however Examiner takes official notice that it is well known that all databases manage information in ‘224 col. 6, lines 21-25 “the data input provides external data to a controller unit 36. The data input 44 may be one of numerous devices including ... local database 50, or external database 52

having a communication channel with control unit 36” these external and internal databases which communicate with the control unit are interpreted to have the same meaning as a ‘database configured to manage information’;

“a document format database configured to manage information by receiving the document information and providing the document format information for the at least one predetermined region of the plurality of regions where the digital watermark is embedded”

however Examiner takes official notice that it is well known that all databases manage information in ‘224 col. 6, lines 49-56 “Alternatively, the bit map data stored in document storage 30 may be maintained in electronic form and placed on a network through local database 50 which in communication with external database 52 that may be part of a communication system” the databases the apparatus communicate with manage information.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of ‘224 that explain how watermarks are inserted and extracted into an image to include a means to utilize databases to manage placement of watermarks. One of ordinary skill in the art would have been motivated to perform such a modification because as indicated by ‘224 using known techniques data can be embedded into the glyph encoder. Furthermore as indicated by ‘224 (see col. 6, lines 38-42) “The information is then encoded in accordance with known techniques including those teaching found in the patents cited and incorporated herein, and stored at the appropriate location in the bit map stored in document storage” Official notice is taken that these known techniques include a feature that databases manage information.

As to dependent claim 119, “wherein said digital watermark extracting unit of the image utilizing apparatus is further configured to authenticate the processed image data in the at least one predetermined region by using a watermark key including an authentication information” is shown in ‘224 col. 7, line 57 through col. 8, line 14 (note digital watermarking is a known technique to verify owner, creator, developer and authorized user is interpreted to be equivalent to ‘authenticate the processed image data’).

As to dependent claim 120, “wherein said digital watermark embedding unit of the image providing apparatus is further configured to recognize a format of said image data, and embed the digital watermark the digital watermarking the at least one predetermined region based on said format, and wherein said digital watermark extracting unit of the image utilizing apparatus is further configured to recognize a format of said processed image data, and verify whether the processed image data in the at least one predetermined region, in which said digital watermark has been embedded, has been tampered” is shown in ‘224 col. 8, line 55 through col. 9, line 21.

10. Claims 38-41, 47, 48, 51, 56, 57, 60, and 63, are rejected under 35 U.S.C. 103(a) as being unpatentable over ‘224 in further view of Wong U.S. Patent No. 6,504,941 (hereinafter ‘941).

As to dependent claim 38, “wherein: said location information for embedding a digital watermark includes a location information of a region for displaying a specific information necessary for detecting a tamper” is taught in ‘224 col. 8 lines 60-65 the following is not taught in ‘224:

“and said image utilizing apparatus extracts said digital watermark with said message digest from said image data based on said location information” however ‘941 teaches “extracting at least a predetermined bit from the watermarked image (step 254); calculating a digest of the values using a cryptographic hash function (step 256); combining the hashed output with the image block E_r ” in col. 8, lines 25-29;

“and generates a corresponding message digest using said specific information in said provided image data and detects tampering with said image data by comparing said extracted message digest with said corresponding generated message digest” however ‘941 teaches “That is, the digest generated from both image blocks must be identical” in col. 9, line 39-40.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of ’224 that explain how watermarks are inserted and extracted into an image to include authentication method. One of ordinary skill in the art would have been motivated to perform such a modification because a method is needed to determine if image has been modified. As indicated by ‘941 (see col. 2, lines 34 et seq.) “A method of invisible watermarking that can be used both for purposes of ownership verification and authentication, that can detect changes in pixel values as well as image size, and that may be used in public key or alternatively, secret key watermarking systems is needed”.

As to dependent claim 39, this claim is substantially similar to claim 38 and is rejected along similar rationale.

As to dependent claim 40, “wherein said region for embedding said message digest corresponding to said specific information is independent of said region for displaying said

specific information necessary for detecting said tamper” is disclosed in ‘941 col. 2 lines 21-29 “The present invention provides an invisible digital watermarking technique that can serve the two purposes of ownership verification and authentication, that can detect changes in pixel values as well as image size, and that may be used in public key or alternatively, secret key watermarking systems. The present invention includes a watermark insertion procedure used by the image owner and a corresponding extraction procedure used by the receiver of the image”.

As to dependent claim 41 “wherein: said location information is registered in both of said image providing apparatus and said image utilizing apparatus said image providing apparatus embeds said digital watermark in said image data based on said registered location information; and said image utilizing apparatus extracts said digital watermark from said image data based on said registered location information” is taught in ‘941 col. 8, lines 44-49 “For example, the appropriate watermark may be an image transmitted to the receiver at an earlier time for watermark comparison purposes. If there is deviation between the two watermarks, then the locations of the deviations indicate the regions within the watermarked image that have been changed”.

As to dependent claims 47 and 48, these claims contain substantially similar subject matter as claims 40 and 41; therefore they are rejected along similar rationale.

As to dependent claim 51, this claim is substantially similar to claim 38; therefore it is rejected along similar rationale.

As to dependent claims 56 and 57, these claims contain substantially similar subject matter as claims 40 and 41; therefore they are rejected along similar rationale.

As to dependent claim 60, this claim is substantially similar to claim 38 and is rejected along similar rationale.

As to dependent claim 63 this claim is substantially similar to claim 38 and is rejected along similar rationale.

As to dependent claim 64, “wherein said digital watermark includes a digital watermark information that is extractable by using a watermark key” is taught in ‘941 col. 2, lines 59-67 “The previously described insertion and extraction methodology may be used for secret key where the same secret key is used for both watermark insertion and extraction”;

“that includes an authentication information which authenticates said image data provided by an valid provider, and said watermark key of said image data, and wherein said image utilizing apparatus which extracts said digital watermark information from data provided by said image providing apparatus using said watermark key provided by said image providing apparatus” is shown in ‘941 col. 2, lines 21-38 “The present invention provides an invisible digital watermarking technique that can serve the two purposes of ownership verification and authentication, that can detect”;

“verifies whether said watermark key has been tampered or not using said authentication information in said watermark key, verifies whether said image data has been tampered or not using said verified watermark key, and displays said verified image data” is disclosed in ‘941 col. 12, lines 8-20 “FIG. 11 shows a summary of the experimental results summarizing the properties of the secret key verification methodology shown in FIGS. 1A, 1B. Similarly, FIG. 12 shows a summary of the experimental results summarizing the properties of the public key verification methodology shown in FIGS. 9A, 9B.

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Referring to FIGS. 11 and 12, one way to accomplish ownership verification is to associate a user key with a watermark so that the desired watermark can only be extracted from a watermarked image with the appropriate user key. If the user performs the watermark extraction procedure using either an incorrect key or with an image that was not watermarked, the user obtains an image that resembles random noise”.

As to dependent claim 65, this claim is substantially similar to claim 64; therefore it is rejected along similar rationale.


Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen C Tran whose telephone number is (571) 272-3842. The examiner can normally be reached from 6:00 am to 2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Louis-Jacques H. Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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